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United States Patent [19]

Lee et al.

[11] **Patent Number:** 6,049,539[45] **Date of Patent:** Apr. 11, 2000[54] **ACCESS SYSTEM AND METHOD FOR PROVIDING INTERACTIVE ACCESS TO AN INFORMATION SOURCE THROUGH A NETWORKED DISTRIBUTION SYSTEM**

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[56] **References Cited****U.S. PATENT DOCUMENTS**

3,668,307 6/1972 Face et al. .
3,798,605 3/1974 Feistel .
3,803,491 4/1974 Osborn .
3,886,302 5/1975 Kosco .
3,924,187 12/1975 Dormans .
4,156,907 5/1979 Rawlings et al. .
4,251,691 2/1981 Kakiyama et al. .
4,329,675 5/1982 Van Hulle .
4,388,645 6/1983 Cox et al. .
4,396,989 8/1983 Fleming et al. .
4,404,589 9/1983 Wright, Jr. .
4,439,759 3/1984 Fleming et al. .

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

61-073452 4/1986 Japan .
PCT/US81/00414 3/1981 WIPO .

OTHER PUBLICATIONS

William Frezza, "The Broadband Solution — Metropolitan CATV Networks," Videotex'84, (Apr. 1984).

M.L. Ellis et al., "INDAX: An Operational Interactive Cabletext System," IEEE Journal on Selected Areas in Communications, vol. SAC-1 (No. 20, p. 285-294, (Feb. 1983).

Norman Toms, "An Integrated Network Using Fiber Optics (INFO) for the Distribution of Video, Data and Telephony in Rural Areas," IEEE Transactions on Communications, vol. COM-26 (No. 7), p. 1037-1045, (Jul. 1978).

Kenneth Rose, "Design of a Switched Broad-Band Communications Network for Interactive Services," IEEE Transactions on Communications, vol. COM-23 (No. 1), p. 49-55, (Jan. 1975).

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[57] **ABSTRACT**

An access system and method provides interactive access to an information source, such as the Internet, through a networked distribution system, such as a television distribution system. Each user in the television distribution system can access the Internet through an associated terminal by sending commands through an upstream channel to a headend server which is interfaced between a television network headend and an Internet Service Provider (ISP). The headend server manages all Internet information requests from the terminals by forwarding the requests to the ISP and receiving the requested information therefrom. An Internet Protocol (IP) address is assigned only to the headend server which keeps track of the terminals requesting information by means of terminal identification numbers or codes associated with each request. The headend server also maintains a plurality of Internet browser applications active at all times to insure that a terminal requesting Internet access can be immediately interfaced to the ISP through one of the active browser applications. Each of the downstream television signals includes a vertical synchronization signal that is preferably employed to generate a framing signal for synchronizing upstream transmission of the data packets comprising the information requests from the terminals.

25 Claims, 10 Drawing Sheets